

What is claimed is:

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1. A coin mechanism comprising:
one or more coin tubes for storing,
respectively, coins of one or more denominations;
5 a dispenser for controlling the dispensing of
coins from the coin tubes; and
a coin mechanism controller suitable for
connection to a controller in an automatic transaction
system so as to receive change dispense signals from the
10 automatic transaction system controller indicating the form
of dispensing change to a customer, wherein the coin
mechanism controller, when connected to the automatic
transaction system controller, serves as an interface
between the automatic transaction system controller and the
15 dispenser, and wherein the coin mechanism controller is
programmed to re-determine the form of paying out the
change.

2. The coin mechanism of claim 1 wherein the
coin mechanism controller is programmed to re-determine the
20 coin denominations in which the change is to be dispensed by
taking into account the distribution and denominations of
coins in the coin tubes.

3. The coin mechanism of claim 1 wherein the
coin mechanism controller is programmed to re-determine the
25 number and denomination of coins in which the change is to
be dispensed when the set of available coin denominations in
the coin tubes differs from the set of coin denominations
which the automatic transaction system controller is
programmed to handle.

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4. The coin mechanism of claim 1 wherein the coin mechanism controller is programmed to re-determine the number and denomination of coins in which the change is to be dispensed when the set of available coin denominations in the coin tubes differs from the coin denominations corresponding to the change dispense signals received from the automatic transaction system.

5. A coin mechanism according to claim 1 suitable for connection to an automatic transaction system controller capable of providing signals indicating the number and denomination of coins in which change is to be dispensed using three different coin denominations, wherein the coin mechanism comprises four coin tubes for storing, respectively, coins of four different denominations.

6. A coin mechanism according to claim 1 suitable for connection to an automatic transaction system controller capable of providing signals indicating the number and denomination of coins in which change is to be dispensed using three different coin denominations, wherein the coin mechanism comprises two coin tubes for storing coins of a first denomination and two coin tubes for storing coins of a second denomination.

7. A coin mechanism according to claim 1 suitable for connection to an automatic transaction system controller capable of providing signals indicating the number and denomination of coins in which change is to be dispensed using three different coin denominations, wherein the coin mechanism comprises four coin tubes for storing coins of a single denomination.

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8. The coin mechanism of claim 5 wherein the three coin denominations are U.S. nickels, dimes and quarters, and wherein the four coin denominations are U.S. nickels, dimes, quarters and one-dollars coins.

5 9. The coin mechanism of claim 2 wherein the coin mechanism controller is programmed to re-determine the number and denomination of coins in which the change is to be dispensed using as many available higher denomination coins as possible.

10 10. The coin mechanism of claim 2 wherein the coin mechanism controller is programmed to monitor the change dispense signals from the automatic transaction controller, to accumulate values corresponding to the monitored signals, and to control the dispenser to dispense
15 change from the coin tubes only after no further change dispense signal is received for at least a specified duration following the previous change dispense signal.

20 11. The coin mechanism of claim 2 wherein the coin mechanism controller is programmed to monitor the change dispense signals from the automatic transaction controller, to accumulate values corresponding to the monitored signals, and to control the dispenser to dispense change from the coin tubes once the accumulated total value is at least equal to or higher than the value of the highest
25 available coin denomination in the coin tubes.

12. The coin mechanism of claim 2 wherein the coin mechanism controller is programmed to monitor the change dispense signals from the automatic transaction controller, to accumulate values corresponding to a

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predetermined number of the monitored signals, and to control the dispenser to dispense change from the coin tubes immediately following receipt of the predetermined number of monitored signals.

- 5 13. An automatic transaction system comprising:
 a coin insert slot;
 a coin return;
 a system controller for determining the amount
 of change due a customer and the number and denominations of
10 coins in which the change is to be dispensed, wherein the
 system controller uses a particular set of coin
 denominations for determining the form in which change is to
 be dispensed;
 a coin mechanism connected to the coin insert
15 slot and the coin return, comprising:
 (a) sensors for generating signals indicative
 of the characteristics of an inserted coin;
 (b) a coin mechanism controller programmed to
 determine whether the inserted coin is acceptable based on
20 the signals generated by the sensors;
 (c) one or more coin tubes for storing,
 respectively, acceptable coins of one or more denominations;
 (d) a dispenser for controlling the dispensing
 of coins from the coin tubes in response to dispense signals
25 from the coin mechanism controller; and
 communication lines connecting the coin
 mechanism controller and the system controller, whereby the
 coin mechanism receives change dispense signals from the
 system controller indicating the number and coin
30 denominations of coins in which change is to be dispensed,
 and wherein the coin mechanism controller is programmed to
 re-determine the number and denominations of coins in which

SUB A2> the change is to be dispensed by taking into account the distribution and denominations of coins in the coin tubes.

14. The automatic transaction system of claim 13 wherein the coin tubes store, respectively, a different set of coin denominations from the coin denominations used by the system controller for determining the form in which change is to be dispensed.

15. The automatic transaction system of claim 13 wherein the coin tubes store, respectively, four different coin denominations and wherein the system controller uses a set of three different coin denominations for determining the form in which change is to be dispensed.

16. A coin mechanism suitable for receiving a removable, replaceable cassette having one or more coin tubes for storing, respectively, coins of one or more denominations, the coin mechanism comprising:

a coin mechanism controller suitable for connection to a controller in an automatic transaction system so as to receive change dispense signals from the automatic transaction system controller indicating the coin denominations in which change is to be dispensed to a customer, wherein the coin mechanism controller, when connected to the automatic transaction system controller, serves as an interface between the automatic transaction system controller and a coin dispenser, and wherein the coin mechanism controller is programmed to re-determine the number and denominations of coins in which the change is to be dispensed by taking into account the distribution and denominations of coins in the coin tubes;

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a dispenser for controlling, in response to
dispense signals from the coin mechanism controller, the
dispensing of coins from the coin tubes in the cassette; and
a keypad for entering a code to identify to the
5 coin mechanism controller the arrangement and corresponding
denominations of coin tubes in the cassette.

17. The coin mechanism of claim 16 further
comprising a coin passageway, sensors for generating signals
indicative of the characteristics of an inserted coin, and a
10 coin separator, wherein the coin mechanism controller is
further programmed to determine whether an inserted coin is
acceptable and to determine the denomination of the coin
based on the signals generated by the sensors, and wherein
the coin mechanism controller controls the coin separator to
15 divert an accepted coin to one of the coin tubes
corresponding to the denomination of the accepted coin.

18. A method of providing change from an
automatic transaction system comprising:
generating change dispense signals
20 corresponding to the number and denomination of coins in
which the change is to be dispensed;
receiving the change dispense signals in a coin
mechanism controller;
re-determining the number and denomination of
25 coins in which the change is to be dispensed by taking into
account the distribution and denominations of coins in coin
tubes associated with the coin mechanism;
generating new change dispense signals based on
the step of re-determining to control the operation of a
30 coin dispenser; and

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to the number and denominations determined by the coin
mechanism controller.

5 19. The method of claim 18 wherein re-
determining occurs when the set of available coin
denominations in the coin tubes differs from the set of coin
denominations corresponding to the signals received by the
coin mechanism controller.

10 20. The method of claim 18 wherein re-
determining comprises re-determining the number and
denomination of coins in which the change is to be dispensed
using as many available higher denomination coins as
possible.

15 21. The method of claim 20 further comprising:
monitoring the coin dispense signals received
in the coin mechanism controller;
accumulating values corresponding to the
monitored signals; and
20 controlling the dispenser to dispense change
from the coin tubes only after no further coin dispense
signal is received by the coin mechanism controller for at
least a specified duration following the previously received
change dispense signal.

25 22. The method of claim 20 further comprising:
monitoring the coin dispense signals received
in the coin mechanism controller;
accumulating values corresponding to the
monitored signals; and

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controlling the dispenser to dispense change from the coin tubes once the accumulated total value is at least equal to or higher than the value of the highest available coin denomination in the coin tubes.

5 23. The method of claim 20 further comprising:
monitoring the coin dispense signals received in the coin mechanism controller;

accumulating values corresponding to a predetermined number of the monitored signals; and

10 controlling the dispenser to dispense change from the coin tubes immediately following receipt of the predetermined number of monitored signals.

24. The method of claim 18 wherein generating change dispense signals includes generating signals
15 corresponding to four quarters, and wherein dispensing includes dispensing a single one-dollar coin.

25. A method of identifying a coin tube arrangement during replacement of a coin tube cassette in a coin mechanism:

20 entering a code corresponding to the coin tube arrangement using a keypad connected to the coin mechanism;

recognizing the code; and
operating the coin mechanism with said cassette inserted in the coin mechanism.

25 26. The method of claim 25 wherein the code comprises a plurality of letters.

27. The method of claim 25 wherein the code comprises a plurality of numbers.

28. The method of claim 25 wherein the code comprises a combination of letters and numbers.

29. The method of claim 25 wherein the code comprises a specified sequence of letters and numbers.

5 30. The method of claim 25 further comprising storing coins accepted by the coin mechanism in the coin tubes of the cassette.

10 31. The method of claim 25 further comprising providing change to a customer using coins stored in the coin tubes of the cassette.

15 32. A method of accumulating currency in an automatic transaction system comprising:
receiving an inserted coin in a coin mechanism;
routing the coin to one of a plurality of coin storage tubes; and
generating a signal indicating that the coin was routed to a cash box.

20 33. The method of claim 32 further comprising controlling a bill validator, in response to said signal, to accept bills of a specified denomination.

25 34. A method of accumulating currency in an automatic transaction system comprising:
receiving an inserted coin in a coin mechanism;
routing the coin to a cash box;
generating a signal indicating that the coin was routed to one of a plurality of coin storage tubes.

35. The method of claim 34 further comprising
controlling a bill validator, in response to said signal, so
as to reject bills of a specified denomination.

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